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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,421

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Martin Schober

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09/05/2006

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EXAMINER

VERDIER, CHRISTOPHER M

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/531,421

Applicant(s)

SCHOBER ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Applicants' amendment dated June 9, 2006 has been carefully considered but is non-persuasive. Claims 17-32 are pending. The new abstract provided by Applicants is acceptable. The specification has been amended to correct the informalities set forth in the first Office action. Claim 30 has been amended to adopt the examiner's suggested claim language. The claims have been amended to overcome most of the informalities therein. The claims have been amended to overcome the rejections under 35 USC 112, second paragraph set forth in the first Office action, but claim 17 has been amended in a manner that renders the claims indefinite. Correction of these matters is noted with appreciation.

The new declaration dated June 9, 2006 is appreciated, but does not include the filing date of the application, and the date that the application was amended is incorrect, as set forth later below.

Concerning the rejection of claims 17-26 and 28-30 under 35 U.S.C. 102(b) as being anticipated by Hoglund 5,039,320, Applicant has argued that the blades 20 in Hoglund are curved in a two-dimensional manner, and that the examiner is incorrect in asserting that the blades 20 are curved in inner portions in a three-dimensional manner, and that this is a critical feature of the present application. This argument is not persuasive, because the first Office action indicates that the blade 20 is curved in the interior section in a three-dimensional manner, noting in figures 2 and 3 that the blade is curved both circumferentially and in an axial direction to the left of reference numeral 36 in figure 2. In other words, the area "A" in the annotated

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figure later below of Hoglund also has curvature in an axial direction, causing the blade to be curved both circumferentially and in an axial direction and hence in a three dimensional manner.

Concerning the rejection of claims 17-26, 28-30, and 32 under 35 U.S.C. 102(b) as being anticipated by United Kingdom Patent 1,277,416, Applicant has argued that the vanes 22 therein are of generally arcuate shape and are divided into two portions which are radially and circumferentially staggered, but that there is no disclosure that the vanes have inner sections which are curved in a three dimensional fashion and an outer section which is curved in a two-dimensional manner. This argument is not persuasive, because figure 2 of United Kingdom Patent 1,277,416 clearly shows that the blades 22a have their innermost sections being curved in a three dimensional fashion, as shown by the curvilinear portion along their innermost sections.

Applicant's argument that nothing in Wickoren 4,904,159 would teach such a vane configuration is noted. However, Wickoren is relied upon to teach blades having an outer section that is at least partly trapezoidal.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration dated June 9, 2006 is defective because:
It does not include the filing date of the application, and the date that the application is stated as being amended (May 5, 2005) is incorrect and should be May 10, 2005.

Claim Objections

Claims 21 and 30-32 are objected to because of the following informalities: Appropriate correction is required.

In claim 21, line 2, -- an -- should be inserted after “of”.

In claim 30, line 4, “an” (second occurrence) should be deleted.

In claim 30, line 4, -- an -- should be inserted after “with”.

In claim 30, line 14, -- the -- should be inserted after “and”.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the amendment to claim 17, lines 1-2, “for a pump, for a cooling water pump” is unclear and ambiguous, because this connotes two different pumps, yet there clearly is only a single pump. In claim 17, line 11, “an inner section” is a double recitation of the inner section recited in lines 6-7. In claim 17, line 12, “an outer section” is a double recitation of the outer section recited in line 7. In claim 30, line 15, “an inner section” is a double recitation of the inner section recited in line 10. In claim 30, line 16, “an outer section” is a double recitation of the outer section recited in line 11.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

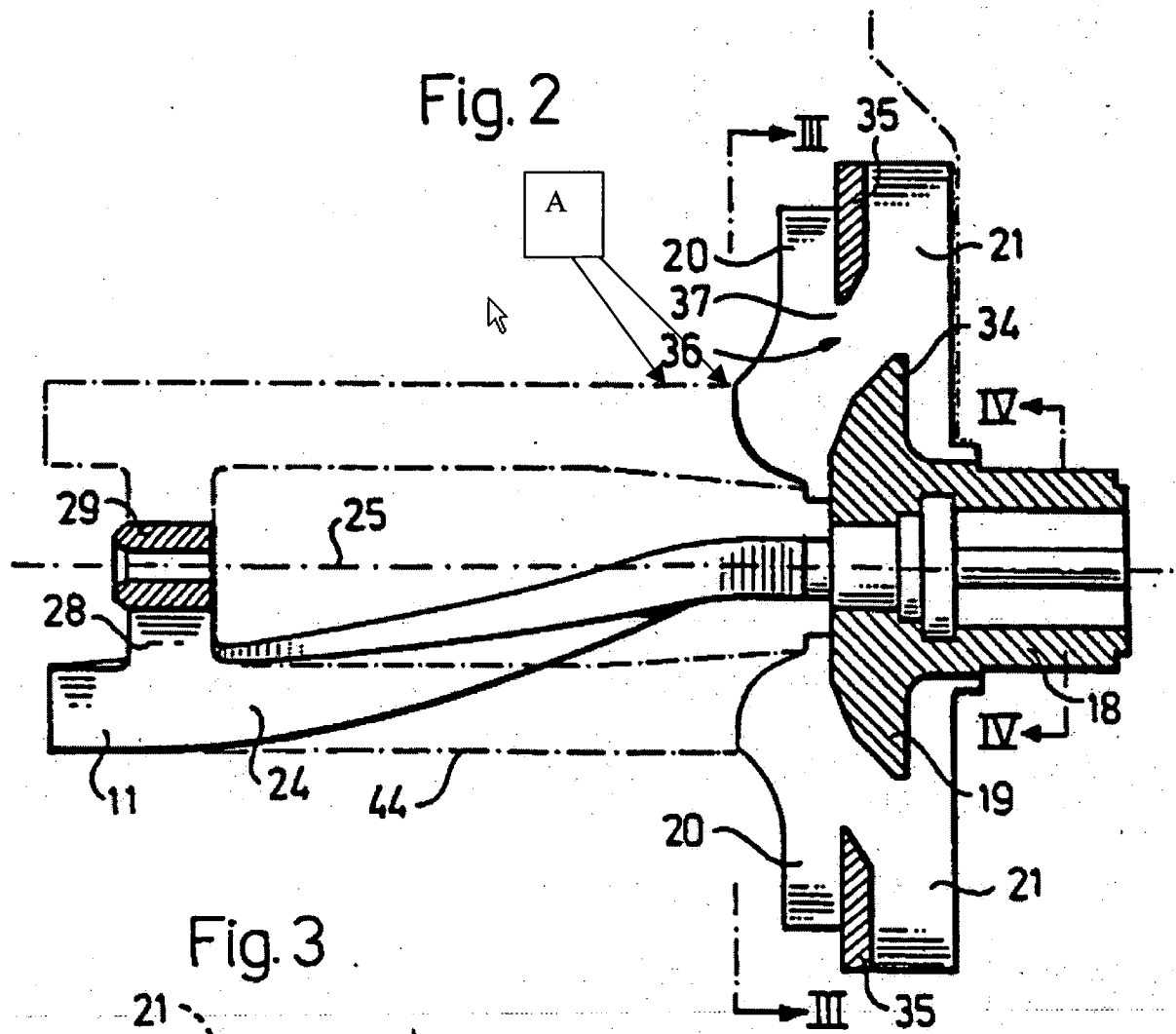
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-26 and 28-30, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hoglund 5,039,320. Note the impeller 10 for a pump 1, comprising a hub 18, a cover disk 35 which is disposed on the intake side of the impeller and is provided with a central opening 36 for sucking in a conveyed medium, and with plural blades 20 which are joined integrally with the cover disk and are provided with an inner section located in the region of the central opening and an outer section located in the region of the cover disk, the impeller being provided with a completely open configuration on a pressure side of the impeller opposite the cover disk and the blades are shaped in an inner section with a three-dimensional curvature (note in figures 2 and 3 that the blade is curved both circumferentially and in an axial direction to the left of reference numeral 36 in figure 2, labeled as area "A" below) and in an outer section with a substantially two-dimensional curvature. The blades are free from coverings, and the blades are curved in a two-dimensional manner in the region of the cover disk and are rectangular to the plane of the cover disk. An axial projection 24 is provided on the cover disk in the region of the central opening, which projection projects in the direction of the intake side. Concerning claim 21, the blade on the intake side is flush with a front edge of an axial projection (the element to the left of reference numeral 36 in figure 2). The cover disk is

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rounded off in the region of the central opening 36, and the blades are provided at least in the outer section on the pressure side with a face surface which is situated in a plane perpendicular to the axis of the impeller. The blades have a convex surface which converges smoothly from the inner section to the outer section, and the blades comprise a concave surface which converges with an edge (at the outer section of the blades) from the inner section to the outer section. The blades have in the outer section a substantially rectangular cross section. The impeller comprises unnumbered radial discharge openings. The scaled diameter of the opening of the cover disk corresponds to about 60 percent of the diameter of the impeller. Note the pump 1 with a bearing 9 in which a pump shaft 8 is held which rotatably passes through a wall 6, 7 of a housing and to which is fastened the impeller with its axial intake opening on the side of the housing wall opposite to the bearing. The recitation in claim 17, lines 1-2 of "for a pump for a cooling water pump of an internal combustion engine" and the recitation in claim 30, line 2 of "for an internal combustion engine" are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.



Claims 17-26, 28-30, and 32, as far as they are definite and understood, are rejected under 35 U.S.C. 102(b) as being anticipated by United Kingdom Patent 1,277,416. Note the impeller 1 for a pump 2, comprising a hub 14, a cover disk 13 which is disposed on the intake side of the impeller and is provided with an unnumbered central opening for sucking in a

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conveyed medium, and a plurality of blades 22a which are joined integrally with the cover disk and are provided with an inner section located in the region of the central opening and an outer section located in the region of the cover disk, the impeller being provided with a completely open configuration on a pressure side of the impeller opposite the cover disk and the blades are shaped in an inner section with a three-dimensional curvature and in an outer section with a substantially two-dimensional curvature. The blades are free from coverings, and the blades are curved in a two-dimensional manner in the region of the cover disk and are rectangular to the plane of the cover disk. An axial projection (the unnumbered washer in figure 1) is provided on the cover disk in the region of the central opening, which projection projects in the direction of the intake side. Concerning claim 21, the blade on the intake side is flush with a front edge of an axial projection 4. The cover disk is rounded off in the region of the central opening, and the blades are provided at least in the outer section on the pressure side with a face surface which is situated in a plane perpendicular to the axis of the impeller. The blades have a convex surface which converges smoothly from the inner section to the outer section, and the blades comprise a concave surface which converges with an edge (at the outer section of the blades) from the inner section to the outer section. The blades have in the outer section a substantially rectangular cross section. The impeller comprises unnumbered radial discharge openings. The scaled diameter of the opening of the cover disk corresponds to about 35 percent of the diameter of the impeller. Note the pump 2 with a bearing 7 in which a pump shaft 5 is held which rotatably passes through a wall 3, 11 of a housing and to which is fastened the impeller with its axial intake opening on the side of the housing wall opposite to the bearing. The wall of the housing at 2 is directly adjacent to a face side of the blades. The recitation in claim 17, lines 1-2 of "for a pump for a

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cooling water pump of an internal combustion engine” and the recitation in claim 30, line 2 of “for an internal combustion engine” are recitations of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 27, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over United Kingdom Patent 1,277,416 in view of Wickoren 4,904,159. The

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United Kingdom Patent 1,277,416 discloses an impeller substantially as claimed as set forth above, including blades 22a having an outer section, but does not disclose that the blades in the outer section have at least a partly trapezoidal cross section.

Wickoren shows an impeller having blades 52 with an outer section 60 that has a partly trapezoidal cross section with a sharpened inlet side edge that forms the partly trapezoidal cross section, for the purpose of severing debris in the inlet of the impeller.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the impeller of United Kingdom Patent 1,277,416 such that the blades in the outer section have at least a partly trapezoidal cross section with a sharpened inlet side edge that forms the partly trapezoidal cross section, as taught by Wickoren, for the purpose of severing debris in the inlet of the impeller.

Claim 31, as far as it is definite and understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoglund 5,039,320 in view of Fukazawa 5,242,268. Hoglund discloses an impeller substantially as claimed as set forth above, including a pump shaft 8, but does not disclose an axial face seal for sealing the pump shaft being provided in the wall of the housing, which seal is situated openly in the flow of the conveying medium.

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Fukazawa (figure 1) shows a pump having pump shaft 15, with an axial face seal near 18 for sealing the pump shaft being provided in a wall of a housing 14, which seal is situated openly in the flow of conveying medium, for the purpose of sealing the pump shaft.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the pump of Hoglund such that it includes an axial face seal for sealing the pump shaft which is provided in the wall of the housing, which seal is situated openly in the flow of the conveying medium, as taught by Fukazawa, for the purpose of sealing the pump shaft.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

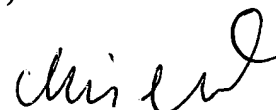
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.
August 30, 2006


Christopher Verdier
Primary Examiner
Art Unit 3745